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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/799,095
Filing Date: March 12, 2004
Appellant(s): MAURER ET AL.

Christopher Voci
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 27, 2006 appealing from the Office action mailed September 28, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 3-10, 13-29, 32, and 33 which are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,852,704 to Brockenbrough et al ***in view of U.S. Patent No. 5,011,642 to Welygan et al.***

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,852,704	BROCKENBROUGH ET AL.	8-1989
5,011,642	WELYGAN ET AL.	4-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-10, 13-29, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,852,704 to Brockenbrough et al in view of U.S. Patent No. 5,011,642 to Welygan et al.

Regarding Claim 1, Brockenbrough et al disclose an article of manufacture (see Figure 1) having most all the features of the instant invention including: an energy absorber 14,16 comprising a first layer 14/16 having a first plurality of corrugations (see Figure 1 and the corrugations of strip 14) separated by a hinge 17 (note that bracket 17 is readable as a hinge in that it acts to provide a bending/hinging point for each of the

corrugations of strips 14 and 16) from a second plurality of corrugations (see Figure 1 and the corrugations of strip 16), wherein the length of the corrugations are longer than their widest cross-sectional width (see Figure 1).

However, Brockenbrough et al does not teach that the energy absorber is made from an extruded plastic first layer.

Welygan et al are relied upon merely for their teachings of an energy absorber (see Figure 7) made from a layer of extruded plastic (see the abstract and column 10 lines 28-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used plastic in the invention of Brockenbrough et al in order to provide a less expensive, light, easier to manufacture material for the energy absorber.

Regarding Claim 3, Brockenbrough et al further disclose that the individual corrugations of the first plurality (the corrugations of strip 14) are nested within individual corrugations of the second plurality (the corrugations of strip 16) after actuation of the hinge 17, i.e., when the energy absorber is fully assembled (see Figure 2, which is the equivalent view to the fully assembled energy absorber depicted in Figure 5B of applicant's invention).

Regarding Claim 4, see the differing depths for strips 14 and 16 in column 3 lines 34-35 of Brockenbrough et al.

Regarding Claim 5, note that the structural aspect is height (i.e., the depth/overall height of the corrugations as described in column 3 lines 34-35).

Regarding Claim 6, see the sinusoidal waveform cross-sectional shape of the energy absorber in Figure 2 of Brockenbrough et al.

Regarding Claim 7, note that during an impact, the varying heights of the corrugations of layers 14 and 16 would be pushed toward one another and contact one another, thus resulting in frictional engagement between the two. This frictional engagement of the strips imparts frictional energy dissipation to the assembly.

Regarding Claim 8, see column 3 lines 34-35.

Regarding Claim 9, Brockenbrough et al disclose in column 5 lines 47 et al that the layers 14 and 16 can be formed from different compositions.

In addition, Welygan et al can be further relied upon for their teachings of constructing an energy absorber with multiple layers (as shown in Figure 7) which can be formed of plastic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the first and second pluralities of corrugations of Brockenbrough et al to be of different compositions, i.e., one strip being plastic and one being metal, so that their strengths and elongation properties may be regulated to control the degree of deflection and overall energy absorption during impact.

Regarding Claims 10, 18, and 24, see Claims 1, 3, and 4.

Regarding Claims 13 and 19, see Claim 5.

Regarding Claims 14 and 20, see Claim 6.

Regarding Claims 15 and 21, see Claim 7.

Regarding Claims 16 and 22, see Claim 8.

Regarding Claims 17 and 23, see Claim 9.

Regarding Claims 25 and 26, see Claim 1 and first layer 14 and second layer 16.

Regarding Claim 27, see first layer 14/16 which comprises first and second pluralities of surface features (i.e., the corrugations of strips 14 and 16).

Regarding Claim 28, see hinge 17 and Claim 1 above.

Regarding Claim 29, see Claim 1.

Regarding Claim 32, see Claim 3.

Regarding Claim 33, see Claim 4.

(10) Response to Argument

Firstly, applicant argues that the Brockenbrough et al reference does not disclose the features of Claims 9, 17, and 23, namely that the first and second layers of the energy absorber differ in composition. The applicant goes on to contend that the previous examiner's office action was not clear and did not point out where in the prior art this limitation is taught. {The examiner now of record has attempted to more clearly point out each and every aspect of the claim limitations and where in either the Brockenbrough et al or Welygan et al references these features can be found.}

In response to this first argument, applicant's attention is drawn to column 5 lines 47 et al of Brockenbrough, where he discloses that the layers 14 and 16 can be formed from different compositions and in addition the Welygan reference discloses how an energy absorber can be formed from a plastic material and the benefits associated with constructing a layer of an energy absorber of such a material (see column 3 lines 1-6). Therefore, both the Brockenbrough and Welygan references provide both motivation

and disclosure of constructing various layers of an energy absorber to be of different compositions. These differing compositions can better regulate the degree of deflection of the absorber and their overall energy absorption at impact (see column 5 lines 47 et al of Brockenbrough et al). Thus, contrary to applicant's remarks, the examiner has provided basis for the rejection of these claims.

Applicant then argues that the examiner has made her 103 rejection regarding the various compositions limitation as being a matter of design choice. As now elaborated on and re-rejected above, the examiner now of record is not making that contention at all but merely that by varying the compositions of the multiple layers a change in energy absorption properties of these layers can be improved upon. This motivation being gleaned from the Brockenbrough et al reference itself in column 5 lines 47 et al.

Secondly applicant argues the rejections of Claims 1, 28, and 29 and the hinge limitation of the claims. Specifically, applicant argues that element 17 of Brockenbrough et al is not the same or equivalent to a hinge and that the bracket structure of element 17 cannot be considered the same as that of a hinge.

In response to this, the examiner contends that in the broadest interpretation of the word "hinge", bracket 17 of Brockenbrough et al does act to connect/hinge strips 14 and 16 together. The ends of strips 14 and 16 are both attached to bracket 17 and bend at those attachment points. Thus, the examiner contends that this bending motion which allows the strips to be connected through the bracket constitutes that of a hinging type motion.

Applicant then goes on to argue that the bracket 17 of Brockebrough et al does not meet the claim limitation of Claim 28, namely the actuating of the hinge to nest the corrugations of the layers within one another. In response to this, the examiner directs applicant's attention to Figure 2 of Brockenbrough et al which shows the entire energy absorber assembled. Figure 5B of applicant's invention is the equivalent fully assembled view of his hinged embodiment. Therefore, if the action of actuating the hinge is equated to the fully assembled energy absorber, then Figure 2 of Brockenbrough et al and Figure 5B of applicant's invention are both the fully assembled or hinged actuated embodiments. When taken in this context, Brockenbrough et al can be said to perform the nesting step of the first and second plurality of corrugations via their hinged connection or hinged actuation at bracket 17.

And lastly, applicant argues that Brockenbrough et al do not teach the limitations of Claims 7, 15, and 21, namely how the differing structural aspects of the layers results in frictional energy dissipating during an impact. In response to this the examiner contends that when strips 14 and 16 contact one another at their respective corrugated sections, the friction generated at those points would act to dissipate an impact's energy. In other words, the varying heights of the corrugations of layers 14 and 16 would be pushed toward one another and contact one another, thus resulting in frictional engagement between the two. This frictional engagement of the strips imparts frictional energy dissipation to the assembly. While the examiner recognizes that applicant tests for the effect of friction through computer simulation and utilizes a lubricating agent between the layers, his remarks to this effect are more specific than

the claim language. Claims 7, 15, and 21 merely require that frictional energy be present in the absorber and that this frictional contact help to dissipate the energy of an impact. Therefore, as long as Brockenbrough et al provide some sort of frictional engagement between its layers (which it does), then this claim limitation is met.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Pam Rodriguez

6/27/06

Conferees:

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